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Exploring the effectiveness of couples interventions for adults living with a chronic physical illness: A systematic review

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Title: Exploring the Effectiveness of Couples Interventions for Adults Living with a Chronic Physical Illness: A Systematic Review.

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Abstract

Objective: Partners have a significant role in a person's ability to adjust to a chronic physical illness, which warrants their inclusion in couples interventions. However to deliver more specific, tailored support it is necessary to explore which types of couples interventions are most effective across certain chronic illness populations and outcomes.

Methods: Five databases were searched using selected terms. Thirty-five articles met the eligibility criteria for inclusion.

Results: The majority of studies were from the US, and most interventions targeted cancer populations. Couples interventions fell into two categories according to therapeutic approach; Cognitive Behavioural Skills Training (CBST) and Relationship Counselling (RC). When compared with a patient-only intervention or controls, CBST interventions effectively targeted behavioural, physical/ somatic and cognitive outcomes, while RC more effectively targeted interpersonal outcomes.

Conclusion: Couples interventions can be more effective than patient-only interventions or controls across various patient and partner outcomes. Couples interventions tend to favour a skills-based or a relationship-based approach, which strongly influences the types outcomes effectively targeted.

Practice Implications: Our findings suggest it could be therapeutically useful to integrate these two approaches to more holistically support couples living with chronic illness. We also identify the need to target understudied illness groups and ethnicities.

Key words: *chronic illness; couples interventions; clinical trials*

1. Introduction

1.1 Background

Living with a chronic physical illness such as cancer, arthritis, or diabetes, is both physically and psychologically demanding. The challenges of managing a chronic illness are not isolated to the individual, but also impact social relationships within families. According to the family adaption model, in families where an individual is chronically ill, all members will experience some degree of impairment to their

physical and psychosocial wellbeing [1]. Chronic illness requires families to develop resilience and to positively adjust to unfamiliar and challenging circumstances [2,3]. Chronic illness may impinge on family dynamics, for instance through 'role reversals, where children assume the role as the carer [4]. This can be psychologically and physically demanding for the young caregivers involved, and demoralizing for the individual requiring care [5]. Partners/ spouses may also experience psychological distress and caregiver burden related to their loved one's diagnosis of diabetes [6] or chronic pain [7,8]. In turn, partners' emotional responses to chronic illness can influence how patients appraise their illness, and the coping strategies they engage in, both individually and as a couple [9].

Living with chronic illness is a strongly shared experience for couples, as patients and partners each face significant psychological and interpersonal challenges, which fluctuate overtime [10,11]. Illness type can greatly influence how couples respond and adjust to a diagnosis. For example in couples living with HIV, the potential impact on partners can be physical as well as psychological, due to the risk of disease transmission [12]. Likewise, whether or not the illness is a progressive condition, such as diabetes, or an episodic condition such as asthma, and whether or not there is a substantial emphasis on self-management at home or hospital admissions, can also influence adjustment [10,11].

Research suggests that the coping strategies utilized by couples living with chronic illness are determined largely by the degree to which patients and partners appraise the illness as something happening to them as *individuals*, or as a *team* [10,13]. It is suggested that when couples appraise chronic illness as something happening to both of them, they are more likely to engage in 'dyadic' coping behaviours. These are defined as coping strategies which are born out of shared emotional responses to the illness-stressor, and are shaped by collective health-related motives and goals [10,14,12]. When couples' emotional responses to a cancer diagnosis and journey are mutual, they are more likely to engage in collaborative decision-making about treatment options [15,16]. Coping that is dyadic in nature can reduce emotional distress [17] and improve relationship outcomes in couples living with cancer [18], and strengthen self-efficacy in couples living with Type 2 diabetes [19]. Conversely, when chronic illness is not interpreted as a shared challenge, patients and partners are more likely to appraise the illness differently, and to engage in unhelpful coping behaviours [10,12]. For example, overprotectiveness in partners is significantly associated with greater emotional distress in persons with Type 2 diabetes [15] and in individuals with cancer [20], and is predictive of depression in people with arthritis [21].

Relationship quality also influences health-related outcomes in couples living with chronic illness [10,22]. Lower marital satisfaction is related to greater pain perception [23], and poor psychological adjustment in couples living with arthritis [24]. Relatedly, marital quality significantly predicted survival rate in individuals with chronic heart failure [25], and intimacy was shown to mediate the association between quality of communication and global distress in couples living with cancer [26].

1.2 Couples Interventions

Despite evidence demonstrating the significant impact of chronic illness on the partner and wider family, there is a propensity in traditional health care to only treat and support the person who is ill. Couples intervention work attempts to address this gap in current health support. The majority of existing couples interventions are among cancer populations. Such studies have demonstrated positive effects on physical, interpersonal, and emotional outcomes among couples living with cancer [27,28,29]. Other systematic review work exploring the benefits of couples interventions in coronary heart disease, has shown significant improvements on quality of life and blood pressure in patients, and depression in both patients and partners [30]. Previous research has examined the effectiveness of couples interventions across different chronic physical illnesses. The most recent review demonstrated that couples interventions can significantly reduce depression and pain perception, and improve relationship quality when compared to controls, or a patient-only intervention [31].

This previous review demonstrated that partner involvement can be beneficial across various illness groups, and presented the possibility of developing a standardised couples intervention, applicable to different types of chronic physical illness. However as previously demonstrated, each type of chronic illness is unique in terms of the challenges it poses for couples, and how couples respond to intervention may be contingent on the appropriateness of the intervention content. In this regard, it would be of practical benefit to investigate whether certain illness populations respond better to specific therapeutic approaches or techniques (e.g. cognitive skills, behaviour therapy, relationship counselling). This would also provide scope to identify which illness-related outcomes among couples are best targeted through the use of specific therapeutic methods.

1.3 Rationale

This review will update the literature exploring the benefits of couples interventions across different types of chronic physical illness (referred to as chronic illness hereafter). Building on previous work [31], we will assess the effectiveness of couples interventions according to their main therapeutic approach, and across different outcomes. This will provide practical guidance on which techniques are best suited to improving particular outcomes for couples, and which approaches used by couples interventions are most appropriate for targeting which chronic illness groups.

2. Methods

This review follows the guidance provided in the Cochrane Collaboration handbook [32].

2.1 Eligibility Criteria

The following criteria were used to identify relevant studies: 1. Any study using a controlled design testing the effectiveness of psychological interventions on adults with a diagnosed chronic illness (we excluded studies which targeted neurodegenerative chronic illnesses such as Dementia and Motor Neuron Disease, as many are carer-only focused, and due to the unique impact on cognitive functioning which would make comparisons across illness populations difficult). 2. Interventions involving spouses or partners who are not identified in the study as having a chronic illness themselves (studies considering any family member will be included where >75% of couples comprise of partners/spouses). 3. Studies measuring any type of psychological (e.g. emotional distress, self-management behaviours, illness related beliefs); interpersonal (e.g. perceived support, relationship quality); somatic/ physical (e.g. experience of symptoms, fitness); or biomedical (e.g. blood glucose control, blood pressure). Studies omitted: 1. Studies which did not include a between-groups comparison condition 2. Involved child-parent or parent-child couples 3. Qualitative studies. 4. To reflect modern healthcare treatments and systems studies published before 2000 were excluded.

2.2 Search Strategy

The following databases were searched: PsychINFO and MEDLINE (both searched through OvidSP) and CINAHL (searched through EBSCO host), CENTRAL and Web of Science. Searches were undertaken between July and September 2016. Where a thesaurus existed (PsychINFO and MEDLINE), terms were exploded to detect any closely related terms. Table 1 details the search terminology for MEDLINE, which was replicated or adapted where necessary for the remaining databases. Studies identified through each database were checked for duplicates before screening for eligibility. A manual search was also undertaken using previous reviews and through internet search engines. Studies retrieved from databases and manual searches were initially screened using the study title and abstract. The remaining 102 papers were checked against the eligibility criteria using the full text version of each study. This excluded a further 67 papers, leaving 35 to be included in the review. Figure 1 displays a flow diagram of the literature search method as advised by the PRISMA criteria (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) [33].

2.3 Quality Check Procedure

Methodological quality was assessed independently by two of the authors (E.B and M.De) using the Effective Public Health Practice Project (EPHPP) quality assessment tool [34]. This process required rating each study across the following components: selection bias; study design; potential confounders; blinding of intervention allocation; reliability/ validity of data collection methods; percentages of withdrawal/dropouts; intervention integrity; and the appropriateness of the chosen method of analysis. Global scores were allocated to each study by both authors. Any inconsistencies in scores were discussed, until a firm decision was made regarding the final global score.

3. Results

3.1 Main Descriptives

Thirty-five studies published from 2000 onwards were reviewed. The majority of studies were from the USA (n=25), six were from Europe, two were from Canada, one was from Australia, and one study was from Iran. The average age of participants was 56.4 years, with a range of 42-69.8 years. Cancer was the most commonly studied chronic illness (n=20), followed by Arthritis (n=5), cardiovascular diseases (n=3), HIV (n=3), Hypercholesterolemia (n=2), Type 2 diabetes (n=1), and chronic pain (n=1). All studies were Randomised Controlled Trials. The most common mode of delivery was face-to-face (n= 21). In the majority of studies, patients and partners in the couples intervention group partook in the programme together (n=33), and interventions were commonly delivered to individual couples as opposed to larger groups (n=25). Studies had a retention range of 49%-100%. In the majority of studies the retention rate was $\geq 80\%$ (n= 22) and in three studies the retention rate was $<60\%$. See Table 2 for additional descriptive information.

Six studies compared the couples intervention with a patient-only intervention [35,36,37,38,39,40], eight studies used a patient-only comparison group and a usual care control group [41,42,43,44,45,46,47,48], one study compared two types of couples interventions with a patient-alone comparison group [49], and the remaining twenty compared a couples intervention with usual care or waiting-list controls. Twenty-eight studies reported effect sizes, or provided information to calculate effect sizes. See Table 3 for the characteristics of couples interventions.

The methodological quality across studies, as assessed using the Effective Public Health Practice Project guidelines [34] was generally sound; however five studies were assigned weak global scores. Weak scores were assigned due to poor uptake at recruitment [35,36,50], poor reporting of withdrawals [35], low retention rate [36,39], poor reporting of potential confounding variables [39,40] and a lack of established reliability and validity in outcome tools used [40,50]. See Table 4 for quality assessment score for each study.

3.2 Intervention Outcomes

Interventions were grouped into two categories according to their main therapeutic approach: 'Cognitive Behavioural Skills Training' (CBST) (n=25), which focuses on illness cognitions, education, goal setting, and coping strategies such as problem solving and symptom management; and 'Relationship Counselling' (RC) (n=10), which addresses relationship difficulties such as sexual intimacy, partner supportiveness, and communication [38,51,45,52,53,54,55,56,57,58]. There was no noticeable effect of mode of delivery (face-to-face, telephone, online) on illness type or outcomes. However participant outcomes were contingent on therapeutic approach. Couples interventions adopting a CBST approach were most effective at targeting

cognitive, functional, and behavioural outcomes. Whereas couples interventions adopting a RC approach were more effective at addressing interpersonal and intimacy outcomes. Emotional outcomes are reported separately. Approximate effect sizes across all outcomes can be found in Table 4.

3.2.1 Effect of CBST on Patient/ Partner Outcomes

When compared with a patient-only or control group, couples interventions based on CBST improved cognitive outcomes including self-efficacy [36,49,38,59] and illness appraisals [41,60,61,39,62]. Interventions using CBST improved somatic/ physical outcomes including symptom perception [41,42,63,61,48], fitness/ muscle strength [49], sexual limitation [64], physical Quality of Life (QOL) [61], Cholesterol [34], and fear of movement [48]. In comparison with a patient-only/ control group, CBST interventions enhanced behaviours such as dyadic coping [43], medication adherence [65], and increased dietary self-efficacy and spousal support [59]. An exception to this was a RC focused intervention which incorporated planning and decision-making skills, and homework tasks, which increased self-acceptance, reduced fatigue, and improved functional wellbeing [54]. Partners' also benefited from CBST across cognitive outcomes including partner-rated patient self-efficacy [49], self-efficacy for supporting patients to manage pain/ other symptoms, lower caregiver stress [66], less negative caregiver appraisals, uncertainty, and greater personal self-efficacy [61]. Interventions following this approach also increased physical QOL and active coping, and reduced general symptom distress in partners [61].

3.2.2 Effect of RC on Patient/ Partner Outcomes

When compared with a patient-only or control group, interventions based on RC were most effective at addressing interpersonal issues including relationship satisfaction [52,54], perceived partner acceptance of self-image [54], communication quality [56], marital functioning [57], and dyadic adjustment [58]. Intimacy [53] and sexual communication and distress [58] were more effectively targeted by RC. Exceptions of this pattern are CBST focused interventions which included content targeting relationship or intimacy challenges. Such interventions improved sexual self-schemas, sexual intimacy [43], and relationship quality [60]. RC also effectively targeted interpersonal/ intimacy outcomes in partners including relationship satisfaction [54], dyadic adjustment [58], sexual distress, sexual communication [58], and sexual function [38,58].

3.2.3 Emotional Outcomes (across all interventions)

When compared with a patient-only or control group, interventions which contained a module which provided techniques for managing and/ or sharing difficult emotions, effectively reduced depression and emotional distress among couples [67,36,43,60,51,64,61,52,39,56,58], and anxiety [45] and perceived stress [44] in partners.

4. Discussion and Conclusion

4.1 Discussion

This review examines the effectiveness of different types of couples interventions across various health-related outcomes. Somatic, physical, behavioural, and cognitive outcomes were best targeted by CBST in couples, due to the substantial emphasis on practical skill-based learning. RC led to the greatest improvements in interpersonal outcomes for couples, and had some of the strongest effect sizes overall, which suggests that this may be an important area of need for couples living with chronic illness. Another key observation was that many couples interventions achieved greater effects than the same or similar patient-only intervention across emotional [42], interpersonal [37,43,44], cognitive [41,49], and somatic outcomes [46,48]. This suggests that partner-inclusion may provide benefits beyond that of the content of the intervention itself.

A key aim of this review was to establish if certain therapeutic approaches are more effective at targeting specific chronic illness groups. However it was difficult to draw any robust conclusions regarding this, as the therapeutic approach adopted by studies tended to be biased towards certain illness populations. For instance, interventions with a RC focus always involved couples living with cancer, and this illness group generally responded strongly to this approach. Conversely, interventions targeting self-managed chronic illnesses such as arthritis, Type 2 diabetes, and chronic pain, had a limited focus on interpersonal issues. Interpersonal variables such as relationship satisfaction and intimacy strongly influence adjustment in self-managed illnesses such as Type 2 diabetes [68,69] and chronic pain [70,71], which raises an important shortcoming in the design of interventions for many self-managed chronic conditions. This observation however may be skewed by the disproportionate number of studies targeting individuals living with cancer compared with other chronic illness populations.

Some interventions however, did incorporate elements of CBST and RC, which produced moderate to strong effects across a range of somatic, cognitive, behavioural and interpersonal outcomes [43,60,54]. Using this combined approach may therefore be a feasible method of addressing a range of outcomes. In addition, emotional outcomes were measured across the majority of studies, though not all interventions incorporated a module which specifically addressed emotional regulation or the sharing of difficult emotions. Interventions that did not include such a module did not significantly reduce symptoms of emotional distress, suggesting that more sensitive targeting of emotional issues is necessary.

From 2000 until the present day, couples intervention work has been primarily based in the US, with few European studies, and only one non-western country. Cultural variations are likely to impact how couples respond and adjust to chronic illness [10,72,73] and thus will inform the development of the intervention itself. The most commonly studied chronic illness was cancer, followed by arthritis. Chronic conditions such as Type 2 diabetes and chronic pain remain understudied in the context of couples interventions. Such illnesses are heavily self-managed and will often necessitate a large degree of assistance from living partners, and it is imperative that partners' understand sufficiently to be able to provide effective emotional

support. We therefore reiterate the need for further couples intervention work in the context of understudied, self-managed conditions.

Over one third of studies did not assess partner outcomes. This is an important omission as where patient outcomes may not be improved there may be still benefits for partners, which go unseen because they are not assessed. This review exemplifies this as some moderate to strong effects are seen in partners but not patients [38,66]. As discussed previously, the role of partners in patient adjustment can be substantial, which reinforces the need for more consistent assessment of outcomes in partners. As well as this, many studies (37%) did not include a measure of relationship quality or supportiveness for couples. As mentioned before, dysfunctional coping styles among couples can negatively impact psychological and physical adjustment to chronic illness, and a generic measure of relationship quality may usefully explain why it is so difficult for some couples to manage. We would recommend that intervention studies include at least some measure of relationship functioning to consider the interpersonal struggles which may underpin maladaptive adjustment and poor illness outcomes. In addition, many studies did not clarify the extent to which partners took part in the intervention. Several interventions claimed to adopt a dyadic focus, for instance by supporting collaborative goal setting, communication/sharing, and addressing intimacy sharing [39,43,48,51,52,55,56,57,65]. However the majority of studies were unclear in their methodologies about whether partners participated as observers, or whether they were actively engaged by intervention facilitators. This makes it difficult to evaluate effectiveness between different couples studies, alongside the evident challenge of comparing across illness groups.

A small number of studies included in this review assessed acceptability of the intervention or provided the opportunity for participant feedback [35,56,58,61]. This suggests a missed opportunity to further enhance the methodology and content of couples interventions. Relatedly, none of the reviewed studies actively involved their target audience (the couples themselves) in the prior development phase of the intervention. Instead, couples interventions are generally recycled versions of previous patient-only interventions, or are based on theories which are not sensitive of interpersonal aspects of adjustment. Accessing the experiences and preferences of couples themselves through interviews or focus groups would increase the person-centeredness of a couples intervention, thus improving acceptability and likely effectiveness. An example of this approach in practice is a recent mixed-methods study designed to develop an existing couples intervention 'CanCOPE', by exploring at first-hand what couples find most difficult about living with cancer and how this could be better supported [74].

Only published papers were included in the database search, which has meant potentially overlooking some useful work in the grey literature. Articles were also required to be in English, which may have resulted in the exclusion of some relevant work. The strengths of this review include adhering to a clear and focused eligibility and search criteria, and by assessing the quality of each paper using two independent researchers to ensure methodological vigilance.

4.2 Conclusion and Practice Implications

This review presents the benefits of different types of couples interventions across a range of health relevant outcomes. Couples interventions tend to lean either towards a skills-based approach or a relationship-based approach which influences outcomes. We also observed that the majority of studies did not involve couples in the development of the intervention itself. Our findings recommend the design of an evidence-based, couples intervention, which combines elements of CBST, RC, and techniques for managing difficult emotions. In addition, we identify that there is strong need to examine the effectiveness of couples interventions in understudied chronic illness populations and across further cultural borders. It is imperative also that partner outcomes are more consistently assessed in future work, to provide a more comprehensive assessment of effect.

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Table 1: Sample Search Strategy (specified year range: 2000-2016)

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Population context: *chronic disease.mp. or exp Chronic Disease/ OR (((chronic adj6 illness*) or chronic) adj6 disorder*).mp. OR chronic pain.mp. or exp Chronic Pain/*

AND

Study type: *clinical trial*OR clinical trials.mp. or exp Clinical Trial/ OR randomized controlled trial.mp. or exp Randomized Controlled Trial/ OR trial*.ab. (pilot adj6 stud*).mp. OR (feasibility adj6 stud*).mp.*

AND

Intervention design: *exp Spouses/px [Psychology] OR (couples or spouse* or partner* or dyad* or husband* or wife or wives).mp. OR "significant other*".mp. OR (spouse-assisted or couple-based).mp.*

OR

Intervention expressed in more focused terms: *(couple-based adj6 intervention*).mp. OR (spouse-assisted adj6 intervention*).mp. OR couples therapy.mp. or exp Couples Therapy/ AND chronic disease.mp. or exp Chronic Disease/ OR (((chronic adj6 illness*) or chronic) adj6 disorder*).mp. OR chronic pain.mp. or exp Chronic Pain/*

[238 results]

Table 2: Main Descriptive Findings

<u>Participant Characteristics</u>	
- Age	Av.= 56.4 years; range= 42-69.8 years
- Ethnicity	Twenty reported ethnicity; majority Caucasian individuals (Av. = 81.2%); one study used mainly African-American (62%) and Latino (24%) individuals (Remien et al., 2005); In another study Caucasian and African-American participants was almost 50/50 (Mishel et al., 2002).
- Relationship status/ duration	Seventeen studies reported relationship information: majority were married (range 70-100%) and/ or had been in a relationship for a lengthy period of time (20+ years).
- Education/ occupation	Twenty-three studies reported education; majority had a moderate to high level of education; four studies reported occupation (sample included managerial/ professional roles, unemployed, retired).
<u>Study Characteristics</u>	
- Facilitator	Specialist nurses, psychologists, social workers and trained interventionists (n= 23, 65.7%), doctoral or masters level psychology or social work students (n= 7, 20%), interdisciplinary team (n= 2, 5.7%) and no information provided (n= 3, 8.6%).
- Location	Clinic or hospital (n= 19, 54.3%), participants home (n=11, 31.4%), partly clinical setting and partly participants homes (n=4, 11.4%) and no information provided (n=1, 2.9%).
- Frequency (no of sessions)	Range= 3- 12 sessions; majority of interventions spanned over 3- 6 sessions (n= 23, 65.7%).
- Duration (of sessions)	Range= 5-120 minutes; majority of interventions lasted at least one hour per session (n= 21, 60%); seven studies did not provide information on length per session.
- Duration (of intervention)	Range= 1 week-10 months; majority of interventions lasted ≤3 in duration (n=28, 80%); one study did not specify the duration of treatment (Trief et al., 2011).
- Mode of delivery	Face-to-face (n= 21, 60%), telephone (n=9, 25.7%), telephone + face-to-face (n=4, 11.4%), telephone + computer-based component (n=1, 2.9%); in all but two studies (Badger et al 2007, Voils et al 2013), couples in the couples' intervention group almost always partook in the intervention <i>together</i> (n=33, 94.3%); ten sessions were in group format (28.6% (Lenz and Perkins 2000, Martire et al 2003, Riemsma, Taal & Rasker 2003, Keefe et al 2004, van Lankveld et al 2004, Manne, Ostroff and Winkel 2005, Martire et al 2008, Baucom et al 2009, El-Bassel et al 2011, Agren et al 2012); seven of which were in groups of ≤8 couples), twenty-five were individual couple sessions (n=25, 71.4%).
- Follow-up	Less than 6 months (n=7, 20%), at least 12 months (n=11, 31.4%), at least 6 months (n= 9, 25.7%), no follow-up (n= 8, 22.9%).
<u>Outcome measures</u>	Physiological measures e.g. heart rate, blood pressure (n=5, 14.3%), emotional measures e.g. anxiety, depression (n=27, 77.1%), somatic measures e.g. perceived symptoms (n=18, 51.4%), interpersonal/relationship variables e.g. communication and relationship quality (n=23, 65.7%), sexual/ intimacy (n=5; 14.3%), behavioural variables e.g. eating behaviours, medication adherence and coping behaviours (n=12, 34.3%), and cognitive measures e.g. self-efficacy, illness appraisals, illness knowledge and personal control (n=16, 45.7%). Over half of the studies assessed partner outcomes (n= 22, 62.9%).

Table 3: Characteristics of Couple's Interventions (n= 35)

Author(s) Country	Study design	Target population (Illness type, no of participants, mean age (+ SD), relevant demographics) and Retention	Intervention type(s) and contents	Frequency (no of sessions; length of session; duration of intervention; follow-up)	Intervention facilitator Mode Location
Lenz and Perkins 2000 USA	Randomised Controlled Trial	Coronary artery disease patients (71% male); 38 dyads (78% spouses); Age NR; 80% married; 99% had high school education or higher; 89%	<u>Psychoeducational family-based intervention</u> : Usual care (as below); counselling (emotional, interpersonal issues and coping); bi-weekly supportive phone calls over X6 weeks; X1 group-based nutritional meal and progress discussion. Control group: usual care (Informational video/leaflet pre discharge and home visit).	12 weeks; Length of sessions NR; No follow-up	-Delivered by a research assistant, a cardiac nurse and a nurse with group therapy expertise -Face-to-face and telephone -Treatment Clinic
Hartford, Wong & Zakaria 2002 Canada	Randomised Controlled Trial	Coronary artery disease patients (86% male); 131 couples; Av. age 62.5 yrs; 99% married; 51.5% retired; 79%	<u>Couple-based information and support</u> : Graded activity; pain behaviours; medication; healthy diet and lifestyle behaviours; psychosocial issues; cardiac risks. Control group: usual care.	6 phone calls; 20-60 min per session 7 weeks; Assessed at baseline, day 3, week 4 and week 8 (1 week follow-up)	-Delivered by a research nurse -Telephone-based -Couple's homes
Mishel et al 2002 USA	Randomised Controlled Trial	Prostate carcinoma patients; 239 dyads; Av. age 64 yrs; 56% Caucasian and 44% African-American; 57% ≥12 years education; 84% married; 88% stage T2 or T3 tumours; 95%	<u>Uncertainty management intervention with supplementary family session</u> : Cognitive restructuring; stress; problem solving; patient-provider communication; patient advocacy. Patient-alone Uncertainty management: As above but excluding family member session. Control group: usual care	8 sessions; Duration not described; 8 weeks; 4 and 7 months post baseline follow-up	-Delivered by nurses trained in the intervention protocol -Telephone based -Couples home

Riemsma, Taal & Rasker 2003 Netherlands	Randomised Controlled Trial	Rheumatoid Arthritis (RA) patients; 218 dyads (88% spouses); Av. age 55.75 yrs (10.5 SD); Disease duration 11.7 yrs (9.8 SD) 81% ≥ moderate education; 94% retention	<u>Self-management education programme</u> Couple-based group: Goal setting; problem-solving; education; pain management i.e. relaxation; communication skills. Patient-alone group: Same programme as above.	5 sessions; 2 hours per session; 5 weeks; Plus 3 booster sessions after 3, 6 and 9 months; 2, 6 and 12 month follow-up	-Delivered by a specialist arthritis nurse and a nurse with expertise in RA -Face-to-face -Treatment/ research clinic
Author(s) Country	Study design	Target population (Illness type, no of participants, mean age (+ SD), relevant demographics) and Retention	Intervention type(s) and contents	Frequency (no of sessions, length of session, duration of intervention, follow-up)	Intervention facilitator Mode Location
Nezu et al 2003 USA	Randomised Controlled Trial	Cancer patients; 132 dyads (95% spouses); Av. age 47.2 yrs; 77.3% Caucasian; 72% employed with av. 14.57 years of education; Cancer stage: 28% stage I, 56% stage II; 88% retention	<u>Problem-solving therapy</u> Couple-based group: Learning rational problem-solving tasks i.e. emotions as cues, inhibiting automatic behaviours to problems; homework tasks. Patient-alone group: As above but partner not involved in programme. Control group: waiting-list (offered the treatment after the 10- 12-week post treatment assessment)	10 sessions; 1.5 hours per session; 10 weeks; 6 and 12 month follow-up	-Delivered by 15 advanced level psychology graduates and 3 social workers -Face-to-face -Hospital
Martire et al 2003 USA	Randomised Controlled Trial	Osteoarthritis patients (100% female); 24 couples; Av. age 72.8 yrs; 58% retention (patient-only group) 86% retention (couples group)	<u>Arthritis Self-Help Course</u> Couple-based group: arthritis education; pain management; coping with negative emotions; partner support and communication. Patient-only group: As above but excluding partner support and communication elements.	6 sessions; 2 hours per session; 6 weeks; Follow-up period not specified.	-One of two ASHC trained interventionists -Face-to-face -Arthritis clinic
van Lankveld et al 2004 Netherlands	Randomised Controlled Trial	Rheumatoid arthritis patients (65% female); 59 couples; Av. age 49.5 yrs (13.1 SD); Av. duration of disease 7.85 yrs (9.75 SD); 85% ≥ secondary education; 95% retention	<u>Working on Arthritis</u> Couple-based group: CBT; education; rational emotive therapy; relationship outcomes. Patient-only group: As above but excluding module on relationship outcomes.	8 sessions; 1.5 hours per session; 4 weeks; 2 weeks post treatment and a 6 months follow-up	-Multi-disciplinary team; psychologist, rheumatologist, nurse, social worker, physiotherapist, occupational therapist, nutritionist. -Face-to-face -Treatment clinic

Keefe et al 2004 USA	Randomised Controlled Trial	Osteoarthritic knee patients; 72 couples; Age NR; 93% retention	<u>Spouse-assisted Coping Skills Training (SA-CST)</u> : Dyadic coping; goal setting; attention diversion and activity-based skills <u>Exercise Training patient-alone (ET)</u> : endurance, strength and motion training <u>SA-CST plus exercise training (SA-CST+ET)</u> : Both of the above programmes; more emphasis on partner support during exercise. Control group: usual care	SA-CST: 12 sessions; 2 hour per session; 12 weeks ET: 36 sessions; 60 min per; 12 weeks SA-CST-ET: involved both of the above programmes No follow-up	-SA-CST trained PhD psychologists; BA level or higher exercise psychologists for the ET programme -Face-to-face -Treatment clinic
Author(s) Country	Study design	Target population (Illness type, no of participants, mean age (+ SD), relevant demographics) and Retention	Intervention type(s) and contents	Frequency (no of sessions, length of session, duration of intervention, follow-up)	Intervention facilitator Mode Location
Kuijer et al 2004 Netherlands	Randomised Controlled Trial	Cancer patients; 59 couples (69% female); Av age 49.5 yrs; 95% married; Av. relationship duration 21.5 years; Av. 2.60 yrs duration; 85%	<u>Couple-based Cognitive Behavioural Therapy</u> : relationship conflict/ adjustment; behavioural and emotional adjustment; homework tasks. Usual care control group	5 sessions; 90 min per session; bi-weekly; 1 week and 3 month follow-up	-Delivered by a psychologist plus input from a psychiatrist, an orthopaedic surgeon and a physiotherapist -Face-to-face -Not specified
Keefe et al 2005 USA	Randomised Controlled Trial	Cancer patients (43.9% female); 78 couples (76% spouses); Av. age 59.48 yrs; 78.5% Caucasian and 20.35% African-American; 71.8	<u>Couple-based Management Training</u> : Cancer education; communicating with health professionals; relaxation/ visual imagery; activity pacing; pain coping skills; future planning. Usual care control group	3 sessions; 45-60 min per session; 1-2 weeks; No follow-up	-Delivered by four nurse educator specialising In cancer pain/ coping skills -Face-to-face -Patients home
Remien et al 2005 USA	Randomised Controlled Trial	HIV-seropositive individuals (54% male); 215 couples; Av. age 42 yrs; 76% unemployed; 62% African-American and 24% Latino; 91%	<u>Brief couple-based intervention</u> : Education; structured discussions; collaborative problem-solving; couples communication; transmission/acquisition prevention. Control group: usual care	4 sessions; 45-60 min per session; 5 weeks; 2 weeks, 3 months and 6 month follow-up	-Facilitated by a nurse -Face-to-face -HIV/AIDs outpatient clinics

Giesler et al 2005 USA	Randomised Controlled Trial	Prostate carcinoma patients; 99 couples; Av. age 63.8 yrs; 90% Caucasian; 93% ≤high school; 96% married; 86% (patients-only)	<u>Couple-based psychoeducation</u> : Quality of life issues; symptom management; problem-solving; negative emotions; dyadic coping. Usual care control group	6 sessions; Duration per session not specified; 6 months; 4, 7 and 12 month follow-up	-Delivered by a nurse trained for the programme -Face-to-face and telephone-based -Multisite (home and treatment clinic)
Author(s) Country	Study design	Target population (Illness type, no of participants, mean age (+ SD), relevant demographics) and Retention	Intervention type(s) and contents	Frequency (no of sessions, length of session, duration of intervention, follow-up)	Intervention facilitator Mode Location
Canada et al 2005 USA	Randomised Controlled Trial	Prostate carcinoma survivors; 84 couples; Av. age 61.5 yrs (8.3 SD); 81.5% Caucasian; 88.5% ≥college education; Av. relationship 27 yrs (10.75 SD); 61% retention	<u>Sexual rehabilitation counselling</u> Couple-based group: Cancer education; coping; communication skills; CBT. Patient-alone group: As above but excluding partner.	4 sessions; Session 1 (60-90min) and session 2-4 (45-60 min); 4 weeks; 3 and 6 month follow-up	-PhD level clinical psychologist/ masters level counsellor -Face-to-face -Cancer centre
Manne, Ostroff & Winkel 2005, 2007 USA	Randomised Controlled Trial	Breast cancer patients; 119 couples; Av. age 49.5 yrs; 89.5% Caucasian; 66.4% ≥college; Av. relationship duration 22.14 yrs; 52.1% stage 2 cancer; 57.2% use psychosocial supports; 73%	<u>Couple-based psychosocial intervention</u> : Sharing emotions; dyadic stress management; dyadic coping; communication skills; relationship change; homework sensate focus. Usual care control group	6 sessions; 90 min per session; 6 weeks; 6 month follow-up	-Interventionist not specified -Face-to-face -Treatment clinic
Campbell et al 2007 USA	Randomised Controlled Trial	Prostate Cancer Patients; 30 couples; Av. age 60.3 years; ≥high school education (21%); 75%	<u>Coping Skills Training (CST)</u> : Prostate cancer education; problem-solving skills; cognitive and behavioural training i.e. communication skills, activity pacing, and relaxation techniques. Usual Care	6 sessions; 60 min per session; 6 weeks; No follow-up	-Delivered by African-American doctoral level medical psychologists with training in CST and specialised knowledge of prostate cancer. -Telephone-based -Couple's home
Badger et al 2007 USA	Randomised Controlled	Breast cancer patients; 96 couples (63% spouses);	<u>Telephone-interpersonal counselling (TIP-C)</u> : cancer education; emotional issues; social support (patients and	TIP-C: 6 sessions; 34 min per session; 6 weeks	-Delivered by a psychiatric nurse counsellor with

	Trial	Av. age 52.9 years; 85.9% Caucasian; 78.5% educated above high school; 62.6% full/part-time employment; 73.5 married; Av. relationship duration 23.6 years; 92%	partners separately). <u>Self-managed exercise</u> : Planning/ tracking exercise. Attention control group: cancer information	Self-managed exercise: 6 sessions; 11 min per session; 6 weeks (X3 bi-weekly phone calls to partners) Attention control: 6 sessions; 7 min per session; 6 weeks (X3 bi-weekly phone calls to partners); 6 and 10 week follow-up	oncology specialism -Telephone-based -Couple's home
Author(s) Country	Study design	Target population (Illness type, no of participants, mean age (+ SD), relevant demographics) and Retention	Intervention type(s) and contents	Frequency (no of sessions, length of session, duration of intervention, follow-up)	Intervention facilitator Mode Location
Kalaitzi et al 2007 Greece	Randomised Controlled Trial	Postmastectomy patients; 40 couples; Av. age 52.52 yrs; 100% married; Av. relationship duration 24.07 yrs; 100%	<u>Brief couple-based and sex therapy</u> : Mastectomy wound unveiling; communication skills; sensate focus; body imagery issues. Control group: usual care.	6 sessions; Length of each session not described; Bi-weekly; No follow-up	-Specialist breast cancer therapist -Face-to-face -Cancer clinic
Northouse et al 2007 USA	Randomised Controlled Trial	Prostate cancer patients; 235 couples; Av. age 61 yrs; 84% Caucasian; Av. education 15.5 yrs; Median family income \$50,000-75,000; 65% recently diagnosed; 82.9%	<u>Couple-based supportive education (FOCUS programme)</u> : Increasing positivity; challenging uncertainty; coping skills; managing symptoms. Usual care control group	3 in-person sessions; 90 min per session; PLUS 2 telephone sessions; 30 min per session; 4 month duration. 4, 8 and 12 month follow-up	-Delivered by nurses specially trained for the intervention programme -Face-to-face and telephone -Couple's home
Martire et al 2008 USA	Randomised Controlled Trial	Osteoarthritis patients (72% female); 242 couples; Av. age 69 yrs (7.6 SD); 92% Caucasian; Av. education 14.4 yrs (1.9 SD); Av. OA duration 15.2 yrs (10.7 SD); Av. 41 yrs married; 65-70% retention	<u>Couple-based education and support (CES)</u> : Arthritis education; self-care and communication skills; coping with emotions. <u>Patient-orientated education and support (PES)</u> : As above however partner not involved in programme. Control group included: usual care.	6 sessions; 2 hours per session; 6 weeks; 2-3 and 6 month follow-up	-PES and CES facilitators trained by the Arthritis Foundation lead each experimental group (Both also followed an intervention manual) -Face-to-face -Treatment clinic

Fife et al 2008 USA	Randomised Controlled Trial	Persons living with HIV (69.5% male); 84 couples; 66.5% Caucasian; 74.5% aged 20- 39; 85-95% ≥high school; 67% earned <19,000 (44% of which <\$9,000); 49% retention	<u>Couple-based psychosocial programme</u> : Communication skills; appraising stress; dyadic coping and problem solving; social support. <u>Patient-alone therapy</u> : Emotional support and guidance for any interpersonal issues.	Couple-based therapy: 4 sessions; 2 hours per session; 2 weeks; 3 and 6 month follow-up Patient-alone therapy: 4 phone calls; Bi-weekly	-Facilitator not specified -Face-to face (couples group) and telephone- based (patient-alone group) -Treatment clinic/ couples home
Author(s) Country	Study design	Target population (Illness type, no of participants, mean age (+ SD), relevant demographics) and Retention	Intervention type(s) and contents	Frequency (no of sessions, length of session, duration of intervention, follow-up)	Intervention facilitator Mode Location
Ward et al 2009 USA	Randomised Controlled Trial	Cancer patients; 161 dyads; 58.54 yrs (11.77 SD); 89% Caucasian; 71% married; 78% retention	<u>Dyad Representational Intervention to Decrease Cancer Pain (RIDcancerPain)</u> : Cancer beliefs about pain and treatment; cancer education; conceptual and behavioural change; future planning; follow-up phone calls to assess/ amend plans. <u>Solo RIDcancerPain</u> : As above but excluding partners. Control group: usual care	3 sessions; X1 20-80 min and x2 5-10 min sessions; 4 weeks; 5 and 9 week follow-up	-Delivered by 7 masters level students or psychologists -Telephone-based -Couples home
Porter et al 2009, 2012 USA	Randomised Controlled Trial	Gastrointestinal cancer patients (71% male); 130 couples; Av. age 59.4 yrs; 83.3% Caucasian; 88.8% ≥high school; 64.6% stage 4 cancer; 79%	<u>Partner-assisted emotional disclosure</u> : Sharing emotions; how partners can support/listen/reassure; dyadic problem- solving. Information control group: Cancer information; sign-posting finance/ social resources.	4 sessions; 75 min session 1 and 45 min sessions 2-4; 4-8 weeks; Follow-up not specified	-Delivered by a masters- level social worker or psychologist -Face-to-face -Cancer clinics
Baucom et al 2009 USA	Randomised Controlled Trial	Breast cancer patients; 14 couples; Median age 50 years; 86% Caucasian; Median school education 16 yrs; 100% married (median 15	<u>Couple-based relationship enhancement</u> : Breast cancer education; communication skills, disclosing difficult emotions; decision-making; body/ sexual issues; existential thinking; homework tasks. Control group: usual care	6 sessions; 75 min per session; Bi-weekly; 1 year follow-up;	-Delivered by clinical doctoral students trained in couples therapy -Face-to-face -University hospital

		yrs); 78.5% had prior surgery; 78%			
Kayser, Feldman, Borstelmann & Daniels 2010 USA	Randomised Controlled Trial	Breast cancer patients; 47 couples; Av. age 47.5 yrs; 87.2% married Av. relationship duration 19.3 yrs; 88.35% college ed; 30.4% patients treated for depression; 75%	<u>Partners in Coping Program (PICP)</u> : Communication skills; collaborative coping and problem solving; intimacy issues. Hospital standard social work services control: involved information on counselling, crises intervention, and support with discharge.	9 sessions; 1 hour per session; Bi-weekly (av. Duration 5 months); 6 and 12 month follow-up	-Delivered by clinical and oncology social workers (masters level) trained for the programme -Hospital -Face-to-face
Author(s) Country	Study design	Target population (Illness type, no of participants, mean age (+ SD), relevant demographics) and Retention	Intervention type(s) and contents	Frequency (no of sessions, length of session, duration of intervention, follow-up)	Intervention facilitator Mode Location
Manne et al 2011 USA	Randomised Controlled Trial	Prostate cancer survivors; 71 couples; Av. age 57.85 yrs; 85.9% Caucasian; 71.85% ≥college ed; 95.1% married; Av. relationship duration 26.5 yrs; 84.5% Stage 2 Cancer; 88%	<u>Intimacy-Enhancing Therapy (IET)</u> : Sharing emotions/ thoughts; understanding each other's cancer experience; discussing cancer worries; intimacy issues. Usual care control group	5 sessions; 90 min per session; 5 weeks; Follow-up 2 months-post baseline assessment.	-Delivered by therapists trained in manual-guided IET -Face-to-face -Cancer centre
El-Bassel et al 2011 USA	Randomised Controlled Trial	HIV seropositive individuals (60.37% female); 535 African American couples; Av. age 43.41 yrs (8.08 SD); 28.46% employed; 81.8% retention	<u>Health promotion intervention</u> Patient-alone: risk behaviour reduction; nutrition; exercise; disease screening; self-efficacy; future planning. <u>HIV/STD risk reduction intervention</u> Couple-based: STDs/ HIV transmission and acquisition prevention strategies.	8 Sessions; 2 hours per session; 8 weeks; 6 and 12 month follow-up	-African American male and female co-facilitators -Face-to-face -Treatment clinic
Trief et al 2011 USA	Randomised Controlled Trial	Type 2 diabetes patients (63.6% females); 44 couples; Av. age 59.9 yrs (10.2 SD); Av. education 14.1 yrs (2.3	<u>Enhanced Usual Care (EUC) control group</u> : X2 diabetes education sessions; meal planning. <u>Couple-based intervention</u> : EUC; collaborative goal setting and problem solving; communication.	Intervention groups: X2 EUC sessions + X9 intervention sessions; Length NR. EUC controls: X2 EUC sessions.	-Facilitated by a Certified Diabetes Educator (all groups) and a marriage and family therapist (Couples and the

		SD); Duration diabetes 13.4yrs (11 SD); 90.9% retention	<u>Patient-alone intervention</u> : EUC; goal setting for dietary change.	3 and 6 month follow-up	individuals group). -Telephone-based -Couples home
Abbasi et al 2012 Iran	Randomised Controlled Trial	Chronic low back pain patients (88% female); 36 couples; Av. age 45 yrs (10 SD); Pain ranged 6-276 mths; 81% retention	<u>Spouse-assisted multidisciplinary pain management programme</u> : Dyadic coping and pain management; collaborative goal setting; communication skills. <u>Patient-alone multidisciplinary pain management programme</u> : As above however no focus on or inclusion of partners. Control group: usual care.	7 sessions; 2 hours per session; 7 weeks; 12 month follow-up	-Both intervention groups facilitated by a clinical psychologist -Face-to-face -Pain clinic
Author(s) Country	Study design	Target population (Illness type, no of participants, mean age (+ SD), relevant demographics) and Retention	Intervention type(s) and contents	Frequency (no of sessions, length of session, duration of intervention, follow-up)	Intervention facilitator Mode Location
Heinrichs et al 2012 Germany	Randomised Controlled Trial	Breast or gynaecological cancer patients; 72 couples; Av. age 52.45 yrs; 70.5% moderate-high education; 82% married Av. relationship duration 22.3 yrs; 67%	<u>Relationship skills (Side-by-side)</u> : Communication skills, sharing emotions, relationship issues; dyadic coping. Control group: Information provision and sign-posting to added resources.	Side-by-side: 4 sessions; 2 hours per session; Bi-weekly; Control group: 1 session; 2 hours; 6 and 12 month-follow-up	-Delivered by a therapist trained in the intervention protocol -Cancer centre -Face-to-face
Ågren, Evangelista, Hjelm and Strömberg 2012 Sweden	Randomised Controlled Trial	Chronic heart failure (CHF) patients (75% male); 155 couples; Av. age 69.75 yrs; 66% NYHA functioning class of III/IV; 51%	<u>Psycho-educational counselling</u> : CHF education; managing symptoms, lifestyle change; intimacy/ psychosocial support; goal-setting. Control group: usual care.	3 sessions; 60 min per session; 12 weeks (max); 3 and 12 month follow-up	-Trained nurses -Face-to-face plus computer-based component -Hospital
McLean et al 2013 Canada	Randomised Controlled Trial	Metastatic cancer patients; 42 couples; Av. age 50.24 yrs;	<u>Emotionally Focused Therapy (EFT)</u> : Enhancing mutual understanding; relationship quality and intimacy; communication skills; negative thoughts/ behaviours.	8 sessions; 1 hour per session; 8 weeks (on average);	-Delivered by an EFT trained psychologist -Face-to-face

		Av. relationship duration 20.8 yrs; 45.96% college/ university degree; 86%	Control group: usual care.	3 month follow-up	-Hospital or couples' homes
Voils et al 2013 USA	Randomised Controlled Trial	Hypercholesterolemia patients (95% male); 255 couples; Av. age 61.3 years; 64.9% Caucasian; 76.1% above high school education; 17.3% deemed high risk; 83%	<u>Couple-based lifestyle intervention</u> : Education and self-care; problem-solving skills; goal setting; communication skills; healthy behaviours (patient and partner phoned separately). Control group: usual care	9 sessions (9 for patients and 9 for partners separately); Length not specified; 9 months; 11 month follow-up	-Delivered by a research nurse trained for the intervention -Telephone-based -Medical centre and couples' homes
Author(s) Country	Study design	Target population (Illness type, no of participants, mean age (+ SD), relevant demographics) and Retention	Intervention type(s) and contents	Frequency (no of sessions, length of session, duration of intervention, follow-up)	Intervention facilitator Mode Location
Reese et al 2014 USA	Randomised Controlled Trial	Colorectal cancer patients; 23 couples; Av. age 52.9 yrs; 88.8% Caucasian; 100% ≥high school ed; Av. relationship duration 21.83 yrs; Av. time since diagnosis 23.7 years; 78%	<u>Telephone-based Intimacy Enhancement (IE)</u> : Information on sexual issues in colorectal cancer; goal-setting; worries; communication skills; collaborative coping; future planning; homework tasks. Control group: waiting list.	4 sessions; 50 min per session; 4 weeks; No follow-up	-Interventionist not specified -Telephone-based -Home
McVay et al 2015 USA	Randomised Controlled Trial	Hypercholesterolemia patients (94.9% male); 255 couples; Av. age 61.3yrs; 64.9% Caucasian; 65.9%	<u>Couple-based lifestyle intervention</u> : education and self-care; choice of following: diet, exercise, patient-physician communication, medication adherence; goal setting/ spouse support plans. Control group: usual care	10 sessions; Length not specified; 10 months; 1 month follow-up	-Trained research nurse -Telephone-based -Couples' homes

Author(s)	Outcome measures (patient measures, unless measure specified as for partner/ both)	Main findings (effect sizes (Cohen's <i>d</i>) for significant group interactions where available ($p < .05$) Term 'experimental group' refers to the couples intervention group)	Quality Assessment
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Table 4: Study Outcomes and Quality Assessment (n= 35)

Lenz and Perkins 2000	<p>Patient Outcomes: Physical health (self-report checklist of symptoms and complications) Satisfaction with nursing (Patient Satisfaction Questionnaire; original version)</p> <p>Patient and Partner outcomes: Emotional health (Center for Epidemiologic Studies-Depression (CES-D) Scale) Functional health status (pictorial self-report (COOP) chart)</p>	The experimental group reported more negative symptoms/ complications than controls (complications significantly higher for experimental group pre-discharge). Family depression scores decreased compared to patients at 6 and 12 weeks. No other group interactions. Effect sizes unavailable.	Strong
Hartford, Wong & Zakaria 2002	Patient and Partner Outcomes The Beck Anxiety Inventory (BAI)	After 3 days more experimental patients scored in the lower anxiety threshold compared with controls ($p < .04$). No other group interactions. Effect sizes unavailable.	Moderate
Mishel et al 2002	<p>Cognitive status (The Mini-Mental State Examination (MMSE)) Mishel Uncertainty in Illness Scale) Uncertainty management (problem solving and cognitive re-framing subscales of the Self-Control Scale and measures of prostate carcinoma knowledge and patient-provider communication designed by the authors).</p> <p>The Cancer Knowledge Scale Patient-provider communication (5-item scale designed by the authors) Symptom Distress Scale</p>	Cognitive reframing ($d = -0.14$) improved for men in the experimental group at 4 months compared to the patient-only group and controls. Sexual satisfaction improved for African-American participants in the experimental group at 4 months ($d = 0.16$) and Caucasian males in the experimental group reported less symptoms at 4 months ($d = -0.27$) when compared with controls. The experimental group scored better than controls at 4 months on problem solving ($d = 0.31$) and urine flow control ($d = 0.24$). No other group interactions.	Strong
Riemsma, Taal & Rasker 2003	<p>Self-efficacy (The Arthritis Self-Efficacy Scale) Health behaviours and self-management (question manual) Health status (sub-scales from the Disease Activity Scale and the Dutch Arthritis Impact Measurement Scales 2 and the Visual Analogue Scale) Social interactions (items measuring social support) Treatment Credibility and Group leader competence (measured through supplementary questions in the post-treatment questionnaire)</p>	On measures of self-efficacy for other symptoms ($p < .01$) and fatigue ($p = .01$) at 12 months improved for the patient-only group. A trend for greater hours of exercise practice was seen for the patient-only and experimental groups when compared with controls ($p = .06$). No group interactions across any other measures. Effect sizes unavailable.	Weak
Nezu et al 2003	<p>Hamilton Rating Scale for Depression) Vulnerability to emotional-distress (Omega) Self-reported mood scale (Profile of Mood States; POMS) Cancer Inventory of problem situations (CARES)</p>	At 6 month follow-up the experimental group scored better than the patient-only group on POMS ($d = -0.45$), GSI ($d = -0.87$), KAS-R psychiatric symptoms ($d = -1.00$) and KAS-R interpersonal/ social behaviours ($d = -0.32$). Compared to controls, the experimental intervention groups scored	Strong

	<p>Brief Symptom Inventory(GSI) Patient adjustment (Katz Adjustment Scales–Relative Report Form (KAS-R)) Quality of life (QL Index) Social Problem Solving Inventory- Revised (SPSI-R)</p>	<p>better on HRSD ($d=4.49$), SPSI-R ($d=4.93$), Omega ($d= 2.06$), GSI ($d= -4.59$), POMS ($d= -2.04$), CARES ($d= -4.83$), KAS-R psychiatric symptoms ($d= -1.47$), KAS-R interpersonal/ social behaviours ($d= -1.27$).</p>	
Martire et al 2003	<p>Patient-only Outcomes: Depressive symptoms (Centre for Epidemiology Studies–Depression scale (CES-D)) Arthritis self-efficacy (2 subscales from the Arthritis Self-Efficacy Scale) Pain (Arthritis Impact Measurement Scales (AIMS2)) Disability (items from the Health Assessment Questionnaire) Plus supplementary questions measured via Likert scales: Satisfaction with spousal assistance Spousal Emotional Support Spousal insensitive responses</p> <p>Partner-only Outcomes: Caregiving Stress (measured via a Likert scale) Care-giving mastery (4-item scale for family members) Depressive symptoms (CES-D)</p>	<p>Arthritis self-efficacy improved in the experimental group ($d= 0.60$). No other group interactions.</p>	Weak
Scott, Halford & Ward 2004	<p>Patient and Partner Outcomes: Couple communication (conversation/discussion based assessment) Coping (Revised Ways of Coping Questionnaire— Cancer Version (WOC–CA)) Psychological distress (2 subscales from the Psychosocial Adjustment to Illness Scale—Self Report (PAIS–SR)) sexual functioning, and body image (assessed via self-report)</p> <p>Patient-only Outcomes: Avoidance and experience of negative thoughts/behaviours (Impact of Event Scale (IES)) The Sexual Self Schema Scale (SSS) Brief Index of Sexual Functioning (BISF) Client Satisfaction Questionnaire (CSQ)</p>	<p>Couple’s coping ($p<.05$) improved for the experimental group ($d= 1.23$). Compared to females in the patient-only and control groups, females in experimental group had lower psychological distress ($d= -0.22$), lower avoidance behaviours ($d= -0.39$), better sexual self-schemas ($d= 0.80$) and sexual intimacy ($d= 0.91$). No other group interactions.</p>	Strong
van Lankveld et al 2004	<p>General measures: Disease activity (Disease Activity Score (DAS)) Physical functioning (‘mobility’,</p>	<p>No group interactions.</p>	Moderate

	<p>'pain' and 'dexterity' subscales of the Impact of Rheumatic Diseases on General Health and Lifestyle (IRGL))</p> <p>Psychological functioning ('depressive mood' and 'anxiety' subscales of the IRGL)</p> <p>Cognitive appraisal of disease stressors ('pain' subscale from the IRGL)</p> <p>Patients passive pain coping (Coping with Rheumatoid Stressors Questionnaire (CORS))</p> <p>Marriage related measures: Maudsley Marital Questionnaire (MMQ)</p> <p>Social support ('potential support' and 'actual support' subscales from the IRGL)</p> <p>Patients perception of spousal criticism (assessed via a single scale from the spouse reaction questionnaire)</p> <p>Communication improvement (assessed using a scale designed by the authors)</p>		
Keefe et al 2004	<p>Patient only Outcomes:</p> <p>Aerobic fitness and strength assessments (bicycle ergometry and strength testing measures)</p> <p>Pain coping (Coping Strategies Questionnaire; CSQ)</p> <p>Arthritis Self-Efficacy Scale</p> <p>Marital adjustment (Dyadic Adjustment Scale)</p> <p>Psychological and pain disability (Arthritis Impact Measurement Scales (AIMS))</p> <p>Partner only Outcomes:</p> <p>Arthritis Self-Efficacy Scale for spouses</p>	<p>Self-efficacy improved for coping skills plus exercise training group (SA-CST+ET) (experimental 1) and the coping skills group (SA-CST) (experimental 2) compared to the control group ($d= 0.30$ and 0.25, respectively), and the patient-only exercise training group (ET) ($d= 0.26$ and 0.21). Patient self-efficacy rated by spouses also improved for the SA-CST+ET and SA-CST groups compared to controls ($d= 0.17$ and 0.21), and compared to the the ET group ($d= 0.21$ and 0.24). Pain coping improved for the SA-CST+ET and SA-CST groups compared to those in the ET and control groups (effect sizes unavailable). Aerobic fitness and muscle strength was greater for the SA-CST+ET and ET groups compared to the SA-CST group ($d= -0.27$ and -0.23, respectively) and in the SA-CST+ET participants compared to controls, ($d= 0.20$). Leg extension and leg flexion increased for the SA-CST+ET group compared to the SA-CST and control groups, (SA-CST+ET versus SA-CST group: leg extension $d= 0.23$; leg flexion $d= 0.34$; SA-CST+ET versus controls: leg extension $d= 0.30$; leg flexion: $d= 0.30$) and for the ET group compared to SA-CST and controls (ET versus SA-CST group: leg</p>	Strong

Kuijer et al 2004	<p>Patient and Partner Outcomes: Perceptions of Inequity (Two 8-item scales) Relationship Quality (0-10 ladder scale) Center of Epidemiological Studies Depression Scale</p>	<p>extension $d = -0.41$; leg flexion $d = -0.41$; ET versus controls: leg extension $d = 0.44$; leg flexion $d = 0.42$). No group interactions on measures of marital adjustment or psychological pain. Relationship quality ($d = 0.43$), psychological distress ($d = -0.55$) and perceived over investment/under benefit ($d = -0.44$) and under-investment/over benefit ($d = -0.44$) improved for the experimental group until follow-up.</p>	Moderate
Keefe et al 2005	<p>Patient Outcomes: The Brief Pain Inventory Quality of Life (Physical Well-Being and Social/Family Well-Being subscales of the Functional Assessment of Cancer Therapy-General)</p> <p>Partner Outcomes: Self-efficacy in pain management (modified version of the Chronic Pain Self-Efficacy Scale) The Caregiver Strain Index Mood (shortened version of the Profile of Mood States-B)</p>	<p>At post-treatment partners in the experimental group had greater self-efficacy for supporting patients control their pain ($d = 0.79$) and other symptoms ($d = 0.71$), and lower care-giver stress ($d = -0.52$), when compared to controls.</p>	Moderate
Remien et al 2005	<p>Viral load and CD4 cell count (blood sample taken at baseline and week 8) Medication Event Monitoring System (MEMS) cap Demographics (Audio computer-assisted self-interviewing (ACASI) computer-assisted personal interviewing (CAPI))</p>	<p>Adherence to medication was greater in the experimental group compared to controls post-treatment across three adherence measures for total doses taken ($d = 0.52$) and doses taken within specified windows ($d = 0.96$).</p>	Strong
Giesler et al 2005	<p>Bowel, urinary, sexual and cancer concerns (Prostate Cancer Quality of Life Instrument (PCQoL)) Center for Epidemiologic Studies Depression Scale Dyadic Adjustment Scale (Dyadic Satisfaction and Dyadic Cohesion subscales) General quality of life (The Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36))</p>	<p>Cancer-related worry at 12 months ($d = -0.51$), sexual function at 4 months ($d = 0.45$) and sexual limitation at 7 months ($d = -0.45$) and 12 months ($d = -0.45$) improved for the experimental group when compared with controls.</p>	Strong
Canada et al 2005	<p>Patient only Outcomes: International Index of Erectile Functioning (IIEF) Brief Symptom Inventory (GSI) UCLA Prostate Cancer Index (UCLA PCI)</p> <p>Partner only Outcomes:</p>	<p>No group interactions were found.</p>	Strong

	<p>Female Sexual Function Index, (FSFI)</p> <p>Dyadic Adjustment Scale (modified version of the DAS)</p> <p>Breast Cancer Prevention Trial (BCPT) Symptom Checklist (7-item menopausal symptom subscale)</p> <p>Patient and Partner Outcomes : Use and impact of medical treatments (modified questionnaire)</p> <p>Short Form Health Survey (used to summarise and correlate mental (MCS) and physical (PCS) health measures)</p>		
Manne, Ostroff & Winkel 2005	<p>General distress (Mental Health Inventory—18 (MHI-18))</p> <p>Distress related to cancer (Impact of Event Scale (IES))</p> <p>The Partner Unsupportive Behaviours Scale</p> <p>Physical impairment (Functional Status subscale of the Cancer Rehabilitation Evaluation System)</p> <p>Treatment expectancy and evaluation</p> <p>Psychosocial care use (survey)</p> <p>Medical variables (disease stage, treatment level and BEC symptom ratings)</p>	<p>Depressive symptoms decreased for the experimental group ($d = -0.24$). No other group interactions.</p>	Moderate
Campbell et al 2007	<p>Patient Outcomes: Self- Efficacy for Symptom Control Inventory (SESCI)</p> <p>Disease specific QOL (Prostate Cancer Index Composite (EPIC))</p> <p>General health QOL (Physical Function and Mental Health Scales of the Short Form-36 Health Survey (SF-36))</p> <p>Partner Outcomes Self- Efficacy for Symptom Control Inventory (SESCI) (partner adapted version)</p> <p>Profile of Mood States-Short Form (POMS-SF)</p> <p>Caregiver Strain Index (CSI).</p>	<p>Bowel bother reduced for patients in the experimental group ($d = -0.47$). No other group interactions found.</p>	Strong
Badger et al 2007	<p>Patient and Partner Outcomes: Center for Epidemiological Studies Depression Scale</p> <p>Anxiety (4-items from the Positive and Negative Affect Schedule (PANAS), 1-item from the SF-12 and 3-items from the Index of Clinical Stress).</p>	<p>No group interactions.</p>	Strong
Kalaitzi et al	<p>Patient and Partner Outcomes:</p>	<p>Depression ($p < .001$), state anxiety</p>	Moderate

2007	Spielberger's State Trait Anxiety Inventory Centre for Epidemiological Studies-Depression Scale Sexuality and Body Image	($p=.006$), orgasm frequency ($p=.04$) and satisfaction with relationship ($p<.001$) improved for experimental patients. Effect Sizes not available.	
Northouse et al 2007	Patient and Partner Outcomes: Quality of Life (Medical Outcomes Study 12-item short form (MOS SF-12) and Assessment of Cancer Treatment (FACT-G) and Assessment of Prostate Cancer Treatment (FACT-P)) Appraisal of Illness scale (patients only) Appraisal of Caregiving scale (partners only) Beck Hopelessness Scale Mishel Uncertainty in Illness Scale Brief Coping Orientations to Problems Experienced scale Communication (32-item Lewis Mutuality and Interpersonal Sensitivity Scale) Lewis Cancer Self-efficacy Scale General cancer distress and risk for developing future distress (Symptom Scale of the Omega Screening Questionnaire (OSQ)) Expanded Prostate Cancer Index Composite ((EPIC) and a modified version for partners)	Illness uncertainly ($d= -.022$) and communication ($d= 0.22$) improved for experimental patients at 4 month follow-up, and mental QOL ($d= 0.31$) and FACT-G QOL ($d= 0.26$) scores improved in patients at 4 months. Partners in the experimental group showed less uncertainty ($d= -.028$), less negative caregiving appraisals ($d= -.032$), reduced general symptom distress at 4 months ($d= -.034$), better self-efficacy ($d= 0.27$), active coping ($d= 0.28$), and communication ($d= 0.29$) at 12 month follow-up, and improved Physical QOL at 8 ($d= 0.28$) and 12 months ($d= 0.32$).	Strong
Martire et al 2007	Patient only Outcomes: Physical functioning, stiffness and pain perception (Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)) Depression (Center for Epidemiologic Studies—Depression scale (CES-D)) The Arthritis Self-Efficacy scale Marriage-related satisfaction (Marital Adjustment Test) Partner only Outcomes: Perceived Stress scale Depression (CES-D) Caregiver mastery (5-items specific to caregivers and 5-items specific to arthritis) Critical attitudes (assessed by 4-items) Marriage-related satisfaction (Marital Adjustment Test)	At 6 month follow-up the patient-only group had improved total WOMAC scores ($d= -.006$) and WOMAC physical function scores ($d= -.015$) compared to the experimental group. At 6 months spousal support increased for patients in the experimental group ($d= 0.22$). Spouses in the experimental group had lower perceived stress ($d= -.028$) compared to spouses in the patient-only group. Perceived stress reduced for female spouses in the experimental group, but this increased for female spouses in the patient-only group.	Strong
Fife et al 2008	Emotional response (Positive and Negative Affect Schedule—Expanded Form) Illness meaning and personal	The experimental group showed reductions in hostility ($p<.05$), guilt ($p<.05$) and constructed illness meanings ($p<.01$) across all assessment	Weak

	<p>control (Constructed Meaning Scale & the Mastery Scale)</p> <p>Coping (Ways of Coping Checklist plus 4 supplementary items assessing substance use, The Coping Effectiveness Scale was also used to assess coping in the context of dyads)</p> <p>Social support (Inventory of Socially Supportive Behavior)</p> <p>Symptomology (HIV Symptom Checklist)</p>	<p>times, negative emotional response ($p=.007$) and joviality ($p=.02$) at follow-up, and a trend for better total positive affect at follow-up ($p=.06$). No effect sizes available.</p>	
Ward et al 2009	<p>Attitudes towards to use of analgesics (The Barriers Questionnaire II (BQ-II))</p> <p>Pain severity (5-item composite scale, three of which are taken from the Brief Pain Inventory (BPI) Short Form)</p> <p>Interference with activities (items from the BPI Short Form)</p> <p>Global Quality of Life (G-QOL)</p> <p>Negative mood (assessed using a Quality of Life Questionnaire (QLQ) subscale; C30)</p> <p>Pain relief from pain management activities (assessed using a single item)</p> <p>Study evaluation form</p>	<p>Pain relief improved for the experimental group ($ES= 0.85$). At follow-up, attitudinal barriers decreased for the experimental group ($ES= -1.42$) in comparison to controls.</p>	Moderate
Porter et al 2009	<p>Patient and Partner Outcomes: Relationship quality (Quality of Marriage Index (QMI))</p> <p>Miller Social Intimacy Scale (MSIS)</p> <p>Psychological distress (Profile of Mood States-Short Form)</p> <p>'Holding back' (10-item measure assessing extent of disclosure and sharing between partners)</p>	<p>Quality of relationship ($p=.02$) and intimacy ($p=.05$) for experimental couples was better than controls post-treatment when baseline holding back scores were high. No other group interactions. Effect sizes unavailable.</p>	Moderate
Baucom et al 2009	<p>Patient and Partner Outcomes: Quality of Marriage Index</p> <p>Derogatis Inventory of Sexual Functioning</p> <p>Brief Symptom Inventory-18</p> <p>Posttraumatic Growth Inventory</p> <p>Patient outcomes: Functional Assessment of Cancer Therapy</p> <p>Self-image Scale</p> <p>Brief Fatigue Inventory</p> <p>Brief Pain Inventory</p> <p>Rotterdam Symptom Checklist</p>	<p>Experimental patients showed greater self-acceptance ($d=1.02$), perceived partner acceptance of their self- image ($d=0.80$), less symptoms (post-treatment $d=-0.86$; 1 year $d=- 0.61$) and visual pain (post-treatment $d= -0.59$; 1 year $d= -0.53$), improved relationship satisfaction (post-treatment $d= 0.48$; 1 year $d= 0.77$) and functional wellbeing (post-treatment $d= 0.97$; 1 year $d= 1.14$) and lower fatigue (post-treatment $d= -1.67$; 1 year $d= -0.90$). Experimental partners had lower fatigue (post-treatment $d= -0.32$; 1 year $d= -0.31$), better relationship satisfaction (post-treatment $d= 0.64$; 1 year $d= 0.34$) and improved relationship functioning (post-treatment $d= 0.38$; 1 year $d=$</p>	Moderate

Kayser, Feldman, Borstelmann & Daniels 2010	<p>Patient Outcomes: Patient QOL (The Functional Assessment of Cancer Therapy–Breast) Demographics (Questionnaire)</p> <p>Partner Outcomes: Partner QOL (Quality of Life Questionnaire for Spouses and the Illness Intrusiveness Rating Scale) Demographics</p>	1.04). No group interactions.	Moderate
Manne et al 2011	<p>Patient and Partner Outcomes: Psychological distress (The Psychological Distress sub scale of the Mental Health Inventory (MHI) Psychological wellbeing (The Psychological Well-Being sub scale of the MHI) Cancer-related distress (The Impact of Events Scale (IES)) Cancer concerns (asked to rate concern for 10 cancer-relevant issues) Relationship satisfaction/functioning (Dyadic Adjustment Scale (DAS)) Relationship Intimacy (The Personal Assessment of Intimacy in Relationships) Self-disclosure (3-item scale) Perceived Partner Disclosure (3-item scale) Perceived Partner Responsiveness (4-item scale) Mutual Constructive Communication subscale of the Communications Pattern Questionnaire. The Demand-Withdraw subscale of the CPQ</p>	No group interactions.	Moderate
El-Bassel et al 2011	<p>Patient and Partner Outcomes: Health behaviours Fruit and vegetable consumption (7-item food frequency questionnaire) Physical activity (3-items developed by the Centres for Disease Control and Prevention) Cancer screening frequency (self-report)</p> <p>HIV-positive participants: Alcohol consumption (Cutting down, Annoyance by criticism, Guilty feeling, and Eye-openers (CAGE) questionnaire)</p>	The patient-only group improved across most outcome measures; 5-a-day fruit and vegetable intake over the past month ($d= 1.38$), servings of fruit and vegetables over the past month ($d= 0.87$), intake of fatty/ fried food over the past month ($d= -0.18$), achieving physical activity guidelines set over the past 7 days ($d= 1.39$), breast cancer with mammography screening over the past 6 months ($d= .26$) and prostate cancer screening over the past 6 months ($d= 1.51$).	Weak
Trief et al	Blood pressure and LDL cholesterol	At 6 month follow-up cholesterol	Moderate

2011	(finger prick blood test) Waist circumference HbA1c (DCA 2000 haemoglobin tester) Summary of Diabetes Self-Care Adherence scale	improved in the experimental ($d = -0.11$) group compared with controls.	
Abbasi et al 2012	Pain-induced disability (Roland and Morris Disability Questionnaire (RDQ)) Pain severity (visual analogue scale (VAS)) Fear of movement (Tampa Scale of Kinesiophobia) Pain Catastrophizing Scale (PCS) Depression, Anxiety and Stress Scale (DASS) Marital Adjustment Test (MAT)	The experimental group scored better on measures of kinesiophobia when compared to the patient-only and control groups, ($d = -0.60$ and -1.01 , respectively) and on rumination about pain when compared to the patient-only group and controls ($d = -0.05$ and $d = -0.38$) at 12 month follow-up. No other group interactions.	Moderate
Heinrichs et al 2012	Patient outcome: Psychosocial distress (Questionnaire on Stress in Cancer Patients (QSC-R23)) Patient and Partner Outcomes: Psychosocial distress (Fear of Progression Questionnaire and Dealing with Illness Inventory-Revised scale) Benefit finding (The Posttraumatic Growth Inventory) Relationship satisfaction (The Quality of Marriage Index) Communication (subscale from the Partnership Questionnaire) The Dyadic Coping Inventory	Cancer-related distress ($d = -0.35$) improved for experimental patients and fear of progression ($d = -0.04$), post-traumatic growth ($d = 0.22$), communication quality ($d = 0.41$) and dyadic coping ($d = 0.33$), improved for experimental patients and partners. No other group interactions.	Moderate
Ågren, Evangelista, Hjelm & Strömberg 2012	Patient and Partner Outcomes: Demographic information General mental, physical and social health (Short Form-36) Control Attitude Scale (CAS) Beck Depression Inventory Patient-only Outcome: European Heart Failure Self-Care Behaviour Scale (EHFscBS) Partner-only Outcome: Caregiver Burden Scale (CBS)	Experimental patients perceived control over their condition improved at 3 months ($p < .05$). No other group interactions. Effect sizes unavailable.	Moderate
McLean et al 2013	Patient and Partner Outcomes: Marital Functioning (The Revised Dyadic Adjustment Scale) Psychological distress (The Beck Depression Inventory-II (BDI-II) and The Beck Hopeless-ness Scale (BHS)) Partner-only Outcomes:	Marital functioning improved for experimental patients and partners ($d = 1.00$) and perceived caregiver empathic behaviour increased for experimental patients ($d = 1.00$). No other group interactions.	Strong

	<p>Caregiver burden (Demand and Difficulty subscales of the Caregiver Burden Scale)</p> <p>Patient-only Outcomes: Perceived caregiver empathic behaviour (10-item Relationship-Focused Coping Scale (RFCS))</p>		
Voils et al 2013	<p>low-density lipoprotein cholesterol (LDL-C)</p> <p>Goal LDL-C (dichotomous rating)</p> <p>Self-reported exercise (Community for Healthy Activities Model Program for Seniors Questionnaire)</p> <p>Self-reported food intake (Brief Food Frequency Questionnaire)</p> <p>Medication compliance (self-report)</p> <p>Use of primary health care services (hospitalizations, visits and medication use retrieved from the VA Decision Support System's national database)</p>	<p>Calorific intake per day ($d = -0.14$), total fat per day ($d = -0.27$), saturated fat ($d = -0.25$) and percentage of calorific intake from fat ($d = -0.34$) was lower for participants in the experimental group at follow-up. No other group interactions.</p>	Weak
Reese et al 2014	<p>Patient and Partner outcomes:</p> <p>Sexual distress (The Index of Sexual Satisfaction)</p> <p>Sexual communication (Dyadic Sexual Communication Scale)</p> <p>Intimacy (The Miller Social Intimacy Scale)</p> <p>Sexual function (Female Sexual Function Index (FSFI) or the International Index of Erectile Functioning (IIEF))</p> <p>The Medical Impact subscale of the Sexual Function Questionnaire</p> <p>Self-efficacy (3-items assessing self-efficacy related to intimacy/sex)</p> <p>Feasibility and acceptability (patient and partners asked to rate intervention)</p>	<p>Sexual distress ($d = -1.01$), sexual functioning ($d = 1.15$), sexual communication ($d = 0.82$), dyadic adjustment ($d = 0.33$), and intimacy ($d = 0.29$) improved for patients in the experimental group compared with controls. Female sexual function ($d = 1.29$), male sexual function ($d = 0.61$), sexual communication ($ES = 0.68$), sexual distress ($d = -0.56$), intimacy ($d = 0.53$), and dyadic adjustment ($d = 0.45$) improved for experimental partners compared with controls.</p>	Strong
McVay et al 2015	<p>Dietary intake (Brief Block, 2000 Food Frequency Questionnaire)</p> <p>The Community for Healthy Activities Model for Seniors measure</p> <p>15-item eating self-efficacy scale</p> <p>9-item self-efficacy for exercise scale.</p> <p>Spousal support for healthy diet (Social Support and Eating Habits Survey)</p> <p>Spousal support for physical activity (Family Support for Exercise Scale)</p>	<p>Dietary self-efficacy ($d = 0.32$), dietary spousal support ($d = 0.30$), physical activity spousal support ($d = 0.21$) improved for the experimental group. No other group interactions.</p>	Moderate

Figure 1: PRISMA Diagram for Literature Search

